

WHAT IS CLAIMED IS:

1. A tuner for digital television signals, said tuner designed for driving a transmission line several meters long with intermediate-frequency signals responsive to selected ones of radio-frequency signals received by an antenna nearby said tuner, said tuner comprising:

- 5 first electrically controlled front-end circuitry having an input port to which the radio-frequency signals received by said antenna are applied and having an output port for supplying a first intermediate-frequency signal with prescribed first carrier frequency as a frequency-conversion response to the one of the radio-frequency signals selected for reception by said first electrically controlled front-end circuitry, said one of the
10 radio-frequency signals being selected for reception responsive to first remote control information; and

- a first amplifier having an input port to which the output port of said first electrically tunable front-end circuitry connects to supply first intermediate-frequency signal thereto and having an output port for supplying amplified first
15 intermediate-frequency signal to said transmission line.

2. A combination in which the tuner of claim 1 is connected by said transmission line to a digital television signal receiver that comprises:

circuitry for demodulating and digitizing said first intermediate-frequency signal to generate a baseband digital television signal.

3. A combination in which the tuner of claim 1 is connected by said transmission line to electrically controlled frequency-conversion apparatus for converting said first intermediate-frequency signal to a radio-frequency signal in a frequency range that can be detected by a broadcast digital television receiver

4. The tuner of claim 1, further comprising.

a demodulator having an input port for receiving a carrier modulated by remote control information signal and having a first output port for supplying first remote control information recovered from demodulating said carrier modulated by remote control information signal.

5. The tuner of claim 4, wherein said first amplifier is arranged for driving said transmission line without short-circuiting said transmission line for frequencies outside a frequency range occupied by said amplified first intermediate-frequency signal.

6. The tuner of claim 5, wherein said first amplifier is of a type presenting a source impedance at the output port thereof that is not larger than being comparable to the characteristic impedance of a prescribed type of transmission line, said tuner further comprising:

5 a first bandpass coupler network for coupling the output port of said first amplifier to said transmission line over a range of frequencies occupied by said amplified first intermediate-frequency signal.

7. The tuner of claim 6, further comprising:

a first characteristic-impedance termination for said prescribed type of transmission line at the input port of said demodulator;

5 a second bandpass coupler network for coupling said transmission line to said first characteristic-impedance termination over a range of frequencies occupied by said carrier modulated by remote control information signal

8. A combination in which the tuner of claim 6 is connected by said transmission line to apparatus for remotely controlling said first electrically controlled front-end circuitry, which apparatus comprises:

circuitry for generating said remote control information signal;

5 a modulator having an input port connected for receiving said remote control information signal as a modulating signal and having an output port for supplying said carrier modulated by remote control information signal; and

10 a third bandpass coupler network for coupling the output port of said modulator to said transmission line over the range of frequencies occupied by said carrier modulated by remote control information signal.

9. The combination of claim 8, wherein said apparatus for remotely controlling said first electrically controlled front-end circuitry is included within a digital television signal receiver further comprising:

5 a second characteristic-impedance termination for said prescribed type of transmission line;

a fourth bandpass coupler network for coupling said transmission line to said second characteristic-impedance termination over the range of frequencies occupied by said amplified first intermediate-frequency signal; and

10 circuitry for demodulating and digitizing said first intermediate-frequency signal, as coupled to said second characteristic-impedance termination, to generate a baseband digital television signal for further processing within said digital television signal receiver.

10 The tuner of claim 8, wherein said demodulator is of a type having a second output port for supplying second remote control information recovered from demodulating said carrier modulated by remote control information signal, said tuner further comprising:

- 5 second electrically controlled front-end circuitry having an input port to which the radio-frequency signals received by said antenna are applied and having an output port for supplying a second intermediate-frequency signal with prescribed second carrier frequency responsive to the one of the radio-frequency signals selected for reception by said second electrically controlled front-end circuitry responsive to second remote control
10 information recovered by said demodulator;

- a second amplifier having an input port to which the output port of said second electrically tunable front-end circuitry connects to supply second intermediate-frequency signal thereto and having an output port to supply amplified second intermediate-frequency signal to said transmission line as terminated to provide a
15 transmission line of apparently infinite length for said amplified second intermediate-frequency signal, the output port of said second amplifier having a source impedance that is not larger than being comparable to the characteristic impedance of a prescribed type of transmission line; and

- a second bandpass coupler network for coupling the output port of said second
20 amplifier to said transmission line over a range of frequencies occupied by said amplified second intermediate-frequency signal.

11. The tuner of claim 10, further comprising:

a first characteristic-impedance termination for said prescribed type of transmission line at the input port of said demodulator;

5 a third bandpass coupler network for coupling said transmission line to said characteristic-impedance termination over a range of frequencies occupied by said carrier modulated by remote control information signal.

12. A combination in which the tuner of claim 11 is connected by said transmission line to apparatus for remotely controlling both said first electrically controlled front-end circuitry and said second electrically controlled front-end circuitry, which apparatus comprises:

5 circuitry for generating said remote control information signal;

a modulator having an input port connected for receiving said remote control information signal as a modulating signal and having an output port for supplying said carrier modulated by remote control information signal, and

10 a fourth bandpass coupler network for coupling the output port of said modulator to said transmission line over the range of frequencies occupied by said carrier modulated by remote control information signal.

13. The combination of claim 12, wherein said apparatus for remotely controlling both said first electrically controlled front-end circuitry and said second electrically controlled front-end circuitry is included within a digital television signal receiver further comprising:

5 second and third characteristic-impedance terminations for said prescribed type of transmission line;

a fifth bandpass coupler network for coupling said transmission line to said second characteristic-impedance termination over the range of frequencies occupied by said amplified first intermediate-frequency signal;

10 circuitry for demodulating and digitizing said first intermediate-frequency signal,
as coupled to said second characteristic-impedance termination, to generate a first
baseband digital television signal;

 a sixth bandpass coupler network for coupling said transmission line to said third
characteristic-impedance termination over the range of frequencies occupied by said
15 amplified second intermediate-frequency signal;

 circuitry for demodulating and digitizing said second intermediate-frequency
signal, as coupled to said third characteristic-impedance termination, to generate a second
baseband digital television signal;

 circuitry for further processing within said digital television signal receiver said
20 first and second baseband digital television signals for recovering respective first and
second sets of video signals; and

 apparatus for generating a picture-in-picture video display responsive to said first
and second sets of video signals.

14. The tuner of claim 5, wherein said first amplifier is a first transconductance
amplifier, said tuner further comprising:

 a first characteristic-impedance termination for a prescribed type of transmission
line, the output port said first transconductance amplifier coupling to said first
5 characteristic-impedance termination; and

 a first bandpass coupler network for coupling said first characteristic-impedance
termination to the input port of said demodulator over a range of frequencies occupied by
said carrier modulated by remote control information signal.

15 A combination in which the tuner of claim 14 is connected by said transmission line to apparatus for remotely controlling said first electrically controlled front-end circuitry, which apparatus comprises:

5 a second characteristic-impedance termination for said prescribed type of transmission line to which said transmission line couples for said amplified intermediate-frequency signal and for said carrier modulated by remote control information signal;

circuitry for generating said remote control information signal;

10 a modulator having an input port connected for receiving said remote control information signal as a modulating signal and having an output port for supplying said carrier modulated by remote control information signal; and

a further transconductance amplifier having an input port to which the output port of said modulator couples and having an output port coupled to said second characteristic-impedance termination.

16. The combination of claim 15, wherein said apparatus for remotely controlling said first electrically controlled front-end circuitry is included within a digital television signal receiver further comprising:

5 a second bandpass coupler network for selectively coupling said amplified first intermediate-frequency signal from said second characteristic-impedance termination; and

10 circuitry for demodulating and digitizing said amplified first intermediate-frequency signal, as selectively coupled thereto by said second bandpass coupler network, to generate a baseband digital television signal for further processing within said digital television signal receiver.

17. The tuner of claim 14, further comprising:

second electrically controlled front-end circuitry having an input port to which the radio-frequency signals received by said antenna are applied and having an output port for supplying a second intermediate-frequency signal with prescribed second carrier
5 frequency responsive to the one of the radio-frequency signals selected for reception by said second electrically controlled front-end circuitry responsive to second remote control information recovered by said demodulator; and

a second transconductance amplifier having an input port to which the output port of said second electrically tunable front-end circuitry connects to supply second
10 intermediate-frequency signal thereto and having an output port for supplying amplified second intermediate-frequency signal connected to said first characteristic-impedance termination.

18. A combination in which the tuner of claim 17 is connected by said transmission line to apparatus for remotely controlling both said first electrically controlled front-end circuitry and said second electrically controlled front-end circuitry, which apparatus comprises:

5 a second characteristic-impedance termination for said prescribed type of transmission line to which said transmission line couples for said amplified first intermediate-frequency signal, for said amplified second intermediate-frequency signal and for said carrier modulated by remote control information signal;

circuitry for generating said remote control information signal;

10 a modulator having an input port connected for receiving said remote control information signal as a modulating signal and having an output port for supplying said carrier modulated by remote control information signal; and

a further transconductance amplifier having an input port to which the output port of said modulator couples and having an output port coupled to said second
15 characteristic-impedance termination.

19. The combination of claim 18, wherein said apparatus for remotely controlling both said first electrically controlled front-end circuitry and said second electrically controlled front-end circuitry is included within a digital television signal receiver further comprising:

5 circuitry for demodulating and digitizing said amplified first intermediate-frequency signal, as selectively coupled thereto from said second characteristic-impedance termination, to generate a first baseband digital television signal;

10 circuitry for demodulating and digitizing said amplified second intermediate-frequency signal, as selectively coupled thereto from said second characteristic-impedance termination, to generate a second baseband digital television signal;.

circuitry for further processing within said digital television signal receiver said first and second baseband digital television signals for recovering respective first and
15 second sets of video signals; and

apparatus for generating a picture-in-picture video display responsive to said first and second sets of video signals.